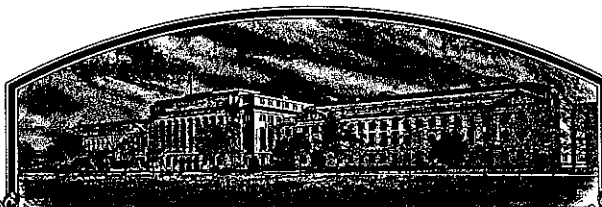


No.

8600163



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

**Asgrow Seed Company**

Whereas, THERE HAS BEEN PRESENTED TO THE

**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (AT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'A3511'



In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D. C. this 30th day of April in the year of our Lord one thousand nine hundred and eighty-seven.

Attest:

*Kenneth H. Evers*  
Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*Richard E. Lyng*  
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

APPROVAL EXPIRES 4-30-85

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

1. NAME OF APPLICANT(S) Asgrow Seed Company		2. TEMPORARY DESIGNATION X3511		3. VARIETY NAME A3511 <i>MS</i> 3/30/87	
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) 9620-190-25 Gull Road, Bldg. 190 Kalamazoo, MI 49001		5. PHONE (Include area code) 616-385-6605		FOR OFFICIAL USE ONLY PVPO NUMBER 8600163	
6. GENUS AND SPECIES NAME Glycine max		7. FAMILY NAME (Botanical) Leguminosae		FILING DATE September 24, 1986 TIME <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M.	
8. KIND NAME Soybean		9. DATE OF DETERMINATION September, 1982		AMOUNT FOR FILING \$ 1800.00 DATE September 18, 1986 AMOUNT FOR CERTIFICATE \$ 200.00 DATE March 27, 1987	
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation				FEES RECEIVED	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION Delaware				12. DATE OF INCORPORATION March 22, 1968	
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS John A. Batcha 9620-190-25 Asgrow Seed Company Gull Road, Bldg. 190 - Kalamazoo, MI 49001 PHONE (Include area code): 616-385-6605					
14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED					
a. <input checked="" type="checkbox"/> Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)					
b. <input checked="" type="checkbox"/> Exhibit B, Novelty Statement.					
c. <input checked="" type="checkbox"/> Exhibit C, Objective Description of Variety (Request form from Plant Variety Protection Office.)					
d. <input checked="" type="checkbox"/> Exhibit D, Additional Description of Variety.					
e. <input checked="" type="checkbox"/> Exhibit E, Statement of the Basis of Applicant's Ownership.					
15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.) <input type="checkbox"/> Yes (If "Yes," answer items 16 and 17 below) <input checked="" type="checkbox"/> No					
16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> Yes <input type="checkbox"/> No			17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input type="checkbox"/> Foundation <input type="checkbox"/> Registered <input type="checkbox"/> Certified		
18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.? <input type="checkbox"/> Yes (If "Yes," give date) <input checked="" type="checkbox"/> No					
19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES? <input type="checkbox"/> Yes (If "Yes," give names of countries and dates) <input checked="" type="checkbox"/> No					
20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable. The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF APPLICANT <i>John A. Batcha</i>				DATE August 11, 1986	
SIGNATURE OF APPLICANT				DATE	

EXHIBIT A

Origin and Breeding History of ~~X3511~~ 'A3511' *dfs 3/30/87*

1979-80 - Original cross was made in the greenhouse  
(winter)

PARENTS: Williams 82 \* A3127

1980 - F<sub>1</sub> plants were backcrossed to A3127 in the field

1980-81 - BC<sub>1</sub>F<sub>1</sub> seed advanced two generations to BC<sub>1</sub>F<sub>3</sub> generation  
(winter)

1981 - BC<sub>1</sub>F<sub>3</sub> seed advanced to BC<sub>1</sub>F<sub>4</sub> generation

1981-82 - 200 BC<sub>1</sub>F<sub>4</sub> plants were selected, threshed individually, and  
(winter) tested for resistance to Phytophthora root rot.

1982 - 96 Phytophthora root rot resistant BC<sub>1</sub>F<sub>4</sub> derived lines were  
visually evaluated in progeny rows. Progeny row number  
A3127-11 was selected for its uniformity, standability and  
disease resistance. This row was harvested in bulk and  
seeds were checked and verified for uniform seed coat luster  
and hilum color.

It was in September, 1982, that A3127-11 was determined to  
be a stable and unique line.

1983 - Seed of A3127-11 was increased and evaluated for phenotypic  
uniformity and Phytophthora root rot resistance. It was  
found to be phenotypically uniform for all agronomic traits  
and resistant to race 1 of Phytophthora root rot.

1984 - A3127-11 was entered in the Strain S399 yield tests which  
were grown at 9 locations in Iowa, Illinois, Indiana and  
Nebraska. It produced uniform stands and was selected for  
its very high yield, standability and disease resistance.

1985 - A3127-11 was entered in the Variety V301 yield tests which  
were grown at 15 locations in Iowa, Illinois, Indiana, Ohio,  
Missouri, Nebraska and Maryland. It was selected as the  
second highest yielding variety out of 30 entries in the  
test.

A3127-11 was nominated for pilot production and assigned the  
maturity designation X3511. Breeder seed of X3511 was produced  
at Ames, Iowa.

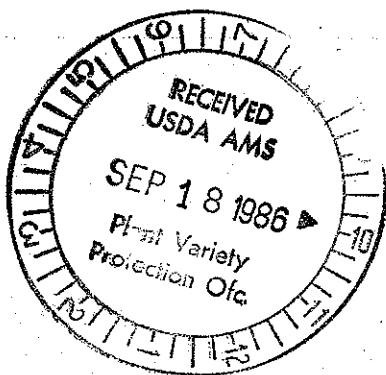
continued on back . . .

801-0000

**'A3511'**

Trial evaluations since 1982 indicate X3511 is uniform and stable. As with other soybean varieties, variants can occur for almost any characteristic during the course of repeated sexual reproduction.

JEM:st



Asgrow Seed Company  
PVP Application - Soybean X3511 'A3511' *RJS*  
August 11, 1986

8600163

EXHIBIT B 'A3511'

Novelty Statement Concerning X3511 Soybean

To our knowledge the soybean variety that most closely resembles X3511 is A3127. Characteristic which differentiates 'A3511' include, but is not necessarily restricted to phytophthora root rot resistance.

Phytophthora Race

Variety	1	2	3	4	5	7	8	9	12	13	17	21
X3511 'A3511'	R	R	R	R	R	R	R	R	S	R	R	R
A3127	S	S	S	S	S	S	S	S	S	S	S	S

R = Resistance

S = Susceptible

'A3511'  
X3511 appears to contain the  $Rps_1^k$  allele whereas A3127 contains the  $rps$  allele.

lka

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
LIVESTOCK, MEAT, GRAIN & SEED DIVISION  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MARYLAND 20705

EXHIBIT C  
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY  
SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) Asgrow Seed Company	TEMPORARY DESIGNATION X3511	VARIETY NAME 'A3511'
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) 9620-190-25 Gull Road, Bldg. 190 Kalamazoo, MI 49001		FOR OFFICIAL USE ONLY PVPO NUMBER 8600163

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,  ). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)  
3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)  
4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ 2. SEED COAT COLOR: (Mature Seed)

1 = Yellow

2 = Green

3 = Brown

4 = Black

5 = Other (Specify) \_\_\_\_\_

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1 = Dull ('Corsoy 79'; 'Braxton')

2 = Shiny ('Nebsoy'; 'Gasoy 17')

★ 4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

★ 5. HILUM COLOR: (Mature Seed)

1 = Buff

2 = Yellow

3 = Brown

4 = Gray

5 = Imperfect Black

6 = Black

7 = Other (Specify) \_\_\_\_\_

★ 6. COTYLEDON COLOR: (Mature Seed)

1 = Yellow

2 = Green

★ 7. SEED PROTEIN PEROXIDASE ACTIVITY:

1 = Low

2 = High

★ 8. SEED PROTEIN ELECTROPHORETIC BAND:

1 = Type A (SP1<sup>a</sup>)

2 = Type B (SP1<sup>b</sup>)

★ 9. HYPOCOTYL COLOR:

1 = Green only ('Evans'; 'Davis')

2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')

3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')

4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

★ 10. LEAFLET SHAPE:

1 = Lanceolate

2 = Oval

3 = Ovate

4 = Other (Specify) \_\_\_\_\_

## 11. LEAFLET SIZE:

- ☐ 2 1 = Small ('Amsoy 71'; 'A5312') 2 = Medium ('Corsoy 79'; 'Gasoy 17')  
 3 = Large ('Crawford'; 'Tracy')

## 12. LEAF COLOR:

- ☐ 3 1 = Light Green ('Weber'; 'York') 2 = Medium Green ('Corsoy 79'; 'Braxton')  
 3 = Dark Green ('Gnome'; 'Tracy')

## ★ 13. FLOWER COLOR:

- ☐ 2 1 = White 2 = Purple 3 = White with purple throat

## ★ 14. POD COLOR:

- ☐ 1 1 = Tan 2 = Brown 3 = Black

## ★ 15. PLANT PUBESCENCE COLOR:

- ☐ 2 1 = Gray 2 = Brown (Tawny)

## 16. PLANT TYPES:

- ☐ 2 1 = Slender ('Essex'; 'Amsoy 71') 2 = Intermediate ('Amcor'; 'Braxton')  
 3 = Bushy ('Gnome'; 'Govan')

## ★ 17. PLANT HABIT:

- ☐ 3 1 = Determinate ('Gnome'; 'Braxton') 2 = Semi-Determinate ('Will')  
 3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

## ★ 18. MATURITY GROUP:

- ☐ 0 ☐ 6 1 = 000 2 = 00 3 = 0 4 = I 5 = II 6 = III 7 = IV 8 = V  
 9 = VI 10 = VII 11 = VIII 12 = IX 13 = X

## ★ 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

## BACTERIAL DISEASES:

- ★ ☐ 0 Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)  
 ★ ☐ 0 Bacterial Blight (*Pseudomonas glycinea*)  
 ★ ☐ 0 Wildfire (*Pseudomonas tabaci*)

## FUNGAL DISEASES:

- ★ ☐ 0 Brown Spot (*Septoria glycines*)  
 Frogeye Leaf Spot (*Cercospora sojae*)  
 ★ ☐ 0 Race 1 ☐ 0 Race 2 ☐ 0 Race 3 ☐ 0 Race 4 ☐ 0 Race 5 ☐ Other (Specify)  
☐ 0 Target Spot (*Corynespora cassiicola*)  
☐ 0 Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)  
☐ 2 Powdery Mildew (*Microsphaera diffusa*)  
 ★ ☐ 1 Brown Stem Rot (*Cephalosporium gregatum*)  
☐ 0 Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

## 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

## FUNGAL DISEASES: (Continued)

- ★ ☐ 0 Pod and Stem Blight (*Diaporthe phaseolorum* var. *sojae*)
- ☐ 0 Purple Seed Stain (*Cercospora kikuchii*)
- ☐ 0 Rhizoctonia Root Rot (*Rhizoctonia solani*)
- Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)
- ★ ☐ 2 Race 1 ☐ 2 Race 2 ☐ 2 Race 3 ☐ 2 Race 4 ☐ 2 Race 5 ☐ 0 Race 6 ☐ 2 Race 7
- ☐ 2 Race 8 ☐ 2 Race 9 ☐ 2 Other (Specify) Races 13, 17 and 21

## VIRAL DISEASES:

- ☐ 0 Bud Blight (Tobacco Ringspot Virus)
- ☐ 0 Yellow Mosaic (Bean Yellow Mosaic Virus)
- ★ ☐ 0 Cowpea Mosaic (Cowpea Chlorotic Virus)
- ☐ 0 Pod Mottle (Bean Pod Mottle Virus)
- ★ ☐ 0 Seed Mottle (Soybean Mosaic Virus)

## NEMATODE DISEASES:

- Soybean Cyst Nematode (*Heterodera glycines*)
- ★ ☐ 0 Race 1 ☐ 0 Race 2 ☐ 1 Race 3 ☐ 1 Race 4 ☐ Other (Specify) \_\_\_\_\_
- ☐ 0 Lance Nematode (*Hoplolaimus Colombus*)
- ★ ☐ 0 Southern Root Knot Nematode (*Meloidogyne incognita*)
- ★ ☐ 0 Northern Root Knot Nematode (*Meloidogyne Hapla*)
- ☐ 0 Peanut Root Knot Nematode (*Meloidogyne arenaria*)
- ☐ 0 Reniform Nematode (*Rotylenchulus reniformis*)
- ☐ OTHER DISEASE NOT ON FORM (Specify): \_\_\_\_\_

## 20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ★ ☐ 1 Iron Chlorosis on Calcareous Soil
- ☐ Other (Specify) \_\_\_\_\_

## 21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ☐ 0 Mexican Bean Beetle (*Epilachna varivestis*)
- ☐ 0 Potato Leaf Hopper (*Empoasca fabae*)
- ☐ Other (Specify) \_\_\_\_\_

## 22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	A3127	Seed Coat Luster	A3127
Leaf Shape	A3127	Seed Size	A3127
Leaf Color	A3127	Seed Shape	A3127
Leaf Size	A3127	Seedling Pigmentation	A3127

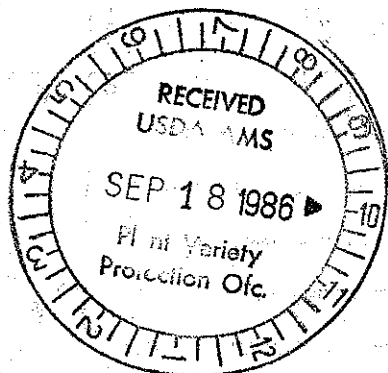


## 23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/ POD
				CM Width	CM Length	% Protein	% Oil		
X35112 Submitted A3511 2/5	140	1.9	88	8.0	11.9	44.0	20.7	16.7	2.6
A3127 Name of Similar Variety	136	1.8	86	7.9	11.6	44.8	20.8	15.2	2.6

## PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A<sub>2</sub> in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.



Asgrow Seed Company  
PVP Application X3511 Soybean  
August 11, 1986

8600163

EXHIBIT D

Additional Description of the Variety

'X3511' R/S

X3511 is a mid Maturity Group III cultivar that possesses outstanding and consistent yield potential relative to other cultivars of similar maturity. It is phenotypically very similar to its widely grown recurrent parent, A3127, with the exception of having specific race resistance to at least 11 out of the 25 documented races of Phytophthora megasperma. X3511 combines good standability and emergence with improved yield and Phytophthora resistance to provide farmers a superior alternative to many widely grown mid Group III cultivars.

JEM:st

Asgrow Seed Company  
PVP Application - Soybean X3511 'A3511' x/s  
August 11, 1986

8600163

EXHIBIT E

Statement of the Basis of Applicant's Ownership

A3511 was originated and developed by Dr. John A. Schillinger, Dr. James Miller, and Dr. Alan K. Walker, Asgrow Plant Breeders. By agreement between employee and Asgrow Seed Company, all rights to any invention, discovery, or development made by an employee are assigned to the Company. No rights to such invention, discovery, or development are retained by the employee.

lka